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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,064	11/19/2003	Douglas D. Coolbaugh	BUR920020119US1	1063

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EXAMINER

SANDVIK, BENJAMIN P

ART UNIT	PAPER NUMBER
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2826

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/707,064

Applicant(s)

COOLBAUGH ET AL.

Examiner

Ben P. Sandvik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 28 June 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
4a) Of the above claim(s) 10-17 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-9 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Claims 1-9 in the reply filed on 6/28/05 is acknowledged.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Waga et al (U.S. Patent #5529831), in view of Wong (U.S. Patent #6027999).

With respect to **claims 1 and 9**, Waga teaches a dielectric material (Fig. 9, 22 and Col 10 Ln 52-53) having metal inductor wires of a first thickness (Fig. 9, 23) and a metal bond pad having a major area of a second thickness (Fig. 9, 22a) located on a surface thereof, and a passivation layer located on exposed walls of said metal wire inductor and portion of said metal bond pad (Fig. 9, 26) as set forth in claim 9, but does not teach that said first thickness is greater than said second thickness. Wong teaches a bonding pad that is below the level of the wires of the device (Fig. 7, 30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to cut the beveled surface of the bond pad of Waga so that it is lower than the metal inductor wires

as taught by Wong, and thus the thickness of the bond pad is less than the thickness of the metal inductor wires as taught by, in order to maintain a slim profile for the device.

With respect to **claims 2 and 3**, Waga and Wong teach all of the limitations of claim 1, but Waga does not teach that the metal inductor wires and the metal bond pad are both composed of a conductive metal that has a resistivity of about 3 micro-ohms*cm or less, or that the conductive metal is selected from the group consisting of Cu, Al, Pt, Ag, Au, and alloys thereof. Wong teaches wires and bond pad composed of aluminum (Col 2 Ln 66 and Col 3 Ln 24). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the bond pad and wires of Waga from aluminum as taught by Wong in order to use the desirable conductive properties of aluminum.

With respect to **claim 4**, Waga and Wong teach all of the limitations of claim 1, but Waga does not teach that the metal inductor wires and the metal bond pad are both composed of Al. Wong teaches wires and bond pad composed of aluminum (Col 2 Ln 66 and Col 3 Ln 24). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the bond pad and wires of Waga from aluminum as taught by Wong in order to use the desirable conductive properties of aluminum.

With respect to **claims 7 and 8**, Waga and Wong teach all of the limitations of claim 1, but Waga does not teach that the dielectric layer is an

insulator having a dielectric constant less than 4.0 or an insulator having a dielectric constant of about 4.0 or greater, or that the dielectric material is selected from oxides, nitrides, oxynitrides, polyimides, polyamines and Si-containing polymers. Wong teaches dielectric material comprised of TEOS (Col 3 Ln 7), an oxide. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the dielectric layer of Waga out of TEOS as taught by Wong in order to use the desirable insulative properties of TEOS.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Waga and Wong, in view of Tsai et al (U.S. PG Pub #20030076209).

With respect to **claim 5**, Waga and Wong teach all of the limitations of claim 1, but do not teach that the first thickness is from about 2000 to about 5000 nm. Tsai teaches inductor wires that are 2 micrometers (Paragraph 27). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the first thickness of Waga to be from about 2000 to about 5000 nm as taught by Tsai in order to create a relatively small device.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Waga and Wong, in view of Wang et al (U.S. Patent 6903644).

With respect to **claim 6**, Waga and Wong teach all of the limitations of claim 1, but do not teach that the second thickness is from about 500 to 1500

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nm. Wang teaches a metal bond pad (Fig. 6, 510) with a thickness of 12,000 angstroms (Col 7 Ln 34-36). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the second thickness of Waga to be from about 500 to 1500 nm as taught by Wang in order to create a relatively small device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben P. Sandvik whose telephone number is (571) 272-8446. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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